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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|---|---|---|---|
| 09/269,250 | 05/21/99 | GOULMY | E 2799/58994 |

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| EXAMINER | |
|---|---|
| SOUAYA, I | |
| **ART UNIT** | **PAPER NUMBER** |
| 1655 | 16 |

**DATE MAILED:** 04/10/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

PTO-90C (Rev.11/00)

1- File Copy

| Office Action Summary | Application No. 09/269,250 | Applicant(s) Goulmy |
|---|---|---|
| | Examiner Jehanne Souaya | Group Art Unit 1655 |

☒ Responsive to communication(s) filed on *Jan 15, 2001*.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

**Disposition of Claims**

☒ Claim(s) *1-19* is/are pending in the application.

Of the above, claim(s) *18 and 19* is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-17* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

**Application Papers**

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

*--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---*

## DETAILED ACTION

### *Election/Restriction*

In response to applicants traversal of the restriction requirement, as stated in the previous office action, the inventions of groups I and II require different reagents, reaction conditions, and reaction parameters. Therefore the inventions are patentably disctinct from each other. The restriction requirement is maintained and is FINAL.

### *Claim Rejections - 35 USC § 112*

### *Written Description*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are broadly drawn to typing alleles of the minor histocompatibility antigen HA-1 comprising detecting polymorphic nucleotides in the cDNA or genomic nucleic acids of the alleles. However, the specification does not provide sufficient written description as to the sequence of the HA-1 antigen, or the cDNA or genomic DNA that encodes the full HA-1 antigen. The specification teaches allele typing of the HA-1 peptide which is disclosed as SEQ ID NO 17. Two alleles are present resulting from a sequence change at nucleotide position 8 of SEQ ID NO 17 (nucleic acid sequence that encodes the HA-1 peptide), the "R" allele (SEQ ID NO 17) and the "H" allele (SEQ ID NO 19) corresponding to an Arginine or a Histidine at the 3rd position of the HA-1 nonapeptide (VLXDDLLEA, where X is either arginine or histidine). The specification teaches that typing these two alleles is important in typing potential donors for bone marrow transplants to prevent Graft versus Host Disease (GVHD), as patients, from two families, receiving bone marrow transplants from HLA identical donors within the family were found to develop GVHD. The specification teaches that allele typing of the HA-1 nonapeptide showed that donors and recipients differed in the HA-1 allele (p 21, example 1). The specification fully teaches the skilled artisan how to type the "H" or the "R" allele in a subject and teaches the sequence of the HA-1 peptide (SEQ ID NO 17 or 19) (see figure 5, p. 5-6). The specification further teaches that the HA-1 peptide is encoded by 2 exons from the KIAA0223 gene (p 6 and 7), and teaches the sequence of the intron located between these two exons (SEQ ID NO 1). The specification, however does not teach the full sequence of the HA-1 *antigen*, nor does the specification teach the cDNA or genomic DNA that corresponds to the nucleic acid sequences

that encode the antigen. The specification teaches that the KIAA0223 gene encodes the HA-1 antigen, but does not disclose what sequences within the KIAA0223 gene correspond to the HA-1 gene. It cannot be determined from the disclosure in the specification if the gene product of the KIAA0223 gene is the HA-1 *antigen*, wherein the HA-1 peptide is a peptide located withing the HA-1 antigen (The specification does not teach that the KIAA0223 gene is the HA-1 gene) or whether the complete sequence of the HA-1 antigen is the HA-1 nonapeptide (SEQ ID NOS 17 or 19) as the specification states that The GvHD associated mH antigen HA-1 is a nonapeptide derived from the di allelic KIAA0223 gene (p. 21). As the claims are drawn to typing unidentified alleles in undisclosed sequences, and the specification does not adequately describe the breadth of these undisclosed sequences, each of the claimed inventions is a genus for which a representative number of species for each genus must be disclosed to meet the written description requirement of 112, first paragraph. As set forth by the Court in *Vas Cath Inc. V. Mahurkar*, 19 USPQ2d 1111, the written description must convey to one of skill in the art "with reasonable clarity" that as of the filing date applicant was in possession of the claimed invention. Absent a written description disclosing the full sequence of the HA-1 antigen (if the HA-1 peptide does not represent the full sequence of the HA-1 antigen) or the sequences of the KIAA0223 gene that correspond to the cDNA or genomic sequences that encode the HA-1 antigen (if the HA-1 peptide does not represent the full sequence of the HA-1 antigen), the specification fails to show that applicant was, in fact, "in possession of the claimed invention" at the time the application for patent was filed.

With regard to claim 13, the claim is broadly drawn to an isolated nucleic acid displaying "80% sequence homology" to SEQ IDNO 1, 17 or 18 or any fragment that can be used for HA-1 typing. Many sequences are encompassed by applicant's claims, and particularly those having "80 % sequence homology" or any fragment of such would bear little resemblance to the single HA-1 peptide (VLXDDLLEA) and intronic sequence (SEQ ID NO 1) taught in the specification. Neither the claims nor the specification set forth any structural or functional characteristics that a skilled artisan could use to identify polynucleotides such polynucleotides other than by SEQ ID NO1.

***Indefinite***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite in the recitation of ... antigen HA-1" as it is unclear if the HA-1 antigen is the HA-1 peptide taught in SEQ ID NO 17, or whether the HA-1 antigen comprises the HA-1 peptide. The specification does not define the sequence of the HA-1 antigen, and only discloses that the sequence of the HA-1 peptide "R" allele is disclosed as SEQ ID NO 17.

Claims 2, 4, 5, 8, and 9 are indefinite as these claims refer to figure 5 when referring to a particular nucleic acid sequence. Ie: for claim 2, it refers to the "H" and "R" alleles as shown in

Fig 5, however figure 5 is composed of two parts, part "a" and part "b", each of which discloses a number of sequences. Furthermore, Fig 5 is confusing because it assigns SEQ ID NO 17 as a nucleic acid sequence, however SEQ ID NO 17 is an amino acid sequence in the sequence listing. Applicant can overcome this rejection by specifying a SEQ ID NO when referring to a sequence instead of referring to a figure.

Claim 17 is indefinite in the recitation of "...a) possibly, at least one primer" as it is unclear whether a primer of according to claim 10 is present in the kit or not. Furthermore, the kit of claim 17 is dependent on a method of claim 14, therefore it is unclear if claim 17 should be drawn to a kit or a method.

***Conclusion***

5. No claims are allowable.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Jehanne Souaya whose telephone number is (703)308-6565. The examiner can normally be reached Monday-Thursday from 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones, can be reached on (703) 308-1152. The fax phone number for this Group is (703) 305-3014.

Any inquiry of a general nature should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Jehanne Souaya

Jehanne Souaya
Patent examiner
April 9, 2001

W. Gary Jones
Supervisory Patent Examiner
Technology Center 1600
4/9/01